

STATE OF IOWA
DEPARTMENT OF COMMERCE
UTILITIES BOARD

<p>IN RE:</p> <p>PRINCIPAL LIFE INSURANCE COMPANY, f/k/a PRINCIPAL MUTUAL LIFE INSURANCE COMPANY,</p> <p style="text-align:right">Complainant,</p> <p>vs.</p> <p>MIDAMERICAN ENERGY COMPANY,</p> <p style="text-align:right">Respondent.</p>	<p>DOCKET NO. FCU-01-3</p>
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ORDER ISSUING QUESTIONS TO PARTIES

(Issued May 22, 2002)

Principal Life Insurance Company f/k/a Principal Mutual Life Insurance Company (Principal) filed Direct Testimony on March 1, 2002, and Rebuttal Testimony on May 16, 2002. MidAmerican Energy Company (MidAmerican) filed Direct Testimony on April 15, 2002. This order includes a list of follow-up questions to be answered by the parties. Although some questions are directed to a particular party or witness, any party who wishes to have any witness answer the question may do so. If a question is directed to a particular witness who cannot answer the question, the party must provide a witness who is able to answer the question for the party. If possible, the parties should submit answers to the questions prior to the

hearing, as prepared supplemental testimony that may be spread upon the record. However, if the parties are unable to submit such prepared testimony since the hearing is scheduled for June 4 and 5, the parties should be prepared to testify regarding the answers to the questions at the hearing.

Questions for Principal witness Ms. Draper.

1. On page 6, lines 4-6 of your direct testimony, you state "at the time Corporate 4 was being designed, the MidAmerican customer service representative assigned to Principal assured me that the electric light heat recovery system would count toward electric space heating." On page 3, lines 50-53 of your rebuttal testimony, you name Mr. Ken Setzkorn as the service representative. When did he make the statement you attribute to him? Was it oral or written? What was the context in which the statement was made? Specifically, what did Mr. Setzkorn say? Who is Mr. Setzkorn, and what is his position, expertise, and experience with MidAmerican? Did Mr. Setzkorn have the authority to make the statement, and was MidAmerican management aware that Mr. Setzkorn made the statement? Did MidAmerican follow up on this statement with confirmation or retraction? If you have any written communication of this statement, please provide it. Did this statement from MidAmerican influence Principal to alter the design or operation of its lighting systems in the Corporate Complex? If so, when and how?

2. On page 3, lines 53-55 of your rebuttal testimony you state "MidAmerican actually threatened to change the tariff to specifically prohibit

consideration of heat recovered from lights in determination of eligibility for the LHS rate, but they never did so." When did MidAmerican threaten to change the tariff? Who from MidAmerican made the threat you describe? Was it written or oral? If you have any written communication of this statement, please provide it.

3. On page 6, line 17, through page 7, line 4, of your direct testimony you describe your first study and state that it shows electric space heat provides at least 73.6 percent of the heating needs of the Corporate Campus. Also on page 7, you refer to Exhibit KSD-1 as documentation for your first study. Which of the paragraphs, calculations and definitions in Exhibit KSD-1 pertain to or support your stated results? For the parts of Exhibit KSD-1, which do not pertain to your result (73.6 percent electric heat), do you intend that these calculations and discussions be considered as general evidence supporting the argument that the Corporate Campus is electrically heated?

4. On page 10, lines 14 through 17, you state that at the Corporate Campus, for 70 percent of the square footage, the only heat provided is from lights. Next, you state that "of the remaining 30 percent of the area (which is the perimeter area along the outside walls)" Does the "70 percent of the square footage" you mention consist of the interior spaces of the buildings at the Corporate Campus? Do these interior spaces require any winter space heat, apart from heat gained from lights, people and equipment? Is the overall situation you describe, in which only the

perimeter area appears to require winter heating from "space heating" equipment, unique to the Corporate Campus?

5. On page 11, line 13 through page 12 line 4 of your direct testimony, you describe the design and operation of the "heat recovery lighting system." Please answer the following questions and explain your answers in detail. Does the "heat recovery lighting system" continue to operate during the summer cooling season? What is the effect on building cooling from the recovery of heat from the lights? Does this system allow heat from the lights to be specifically isolated and then rejected from the building in the summer? Do you agree that the return of ventilation air through slots in lighting troffers helps improve the efficiency of lighting systems by reducing the temperature of the fluorescent tubes? Was the lighting system designed the way it was at least partly to improve the lighting efficiency of the fluorescent tubes, as well as to create the heat recovery system you discuss?

6. On page 12, lines 5-9, of your direct testimony, you refer to the Trane Trace Handbook and testify it states that "for energy analysis purposes, electric lights will convert their entire power input into heat." Does this statement mean that all electricity used by lighting systems will turn into heat, including the electricity which is first converted to visible, infrared and ultraviolet light? Can you estimate what percentage of input power will be first converted into visible light, before becoming heat, by the lighting systems most prevalent in the Corporate Complex? Did

Principal design its lighting system to maximize the visible light output of its lamps and fixtures? If not, why not?

7. On page 12, lines 13 through 15, of your direct testimony, you refer to Exhibit KSD-8 to describe "Principal's distribution of energy." Is this exhibit based on the "detailed monthly accounting of energy used for heating, cooling and other end-uses, for the entire period under dispute" requested in the Order of January 24, 2002? If not, why not, and what is it based on?

8. On page 12, lines 15 through 17, of your direct testimony, you state "Principal only uses one-fifth as much energy to heat its buildings as does the average Midwestern office building." Please explain in detail why this is so. Please include in your explanation your definition of "energy to heat its buildings" or "heating energy use," and explain how your definition is similar to or different from "space heat" listed in Table 2A of the 1999 ASHRAE Application Handbook.

9. On page 12, lines 17-20 of your direct testimony, you state "Principal's energy consumed for cooling is twice as large as the average Midwestern office building." Please explain in detail why this is so.

10. On page 12, line 20 through page 13 line 2 of your direct testimony, you refer to Principal's "miscellaneous load," that includes computer rooms and all electrical outlets. You state the "miscellaneous load" uses 52 percent of the energy. Does this "miscellaneous load" produce heat when using electricity? Does energy used by "miscellaneous load" impact the heating and cooling of Principal's Corporate

Complex? How and when does the energy used in "miscellaneous load" interact with heating and cooling of the Corporate Complex? Should the "miscellaneous load" such as computers, office equipment or other items that produce heat, be counted as "electrical space heating?" Why or why not?

11. On page 12, lines 17-20 of your direct testimony, you state "Principal's energy consumed for cooling is twice as large as the average Midwest office building – 7 percent as compared to the average of 4 percent and would be even greater if Principal did not use outdoor air to cool in winter." Describe in detail how Principal uses outdoor air to cool in winter. Is the outdoor air used to cool occupied office space? Does the outdoor air used for cooling also provide ventilation? At what outdoor temperature does cooling cease and heating begin?

12. On page 13, lines 12-21 of your direct testimony, you describe a monthly accounting of Principal's energy use for 2001, provided in Exhibit KDS-2. You state the exhibit was created using the Trane Trace 600 Energy Simulation Program. What is the simulation based on?

13. On page 13, lines 13 through 14 of your direct testimony, you describe Exhibit KSD-2 as a "fair and reasonable representation of all years relevant to (this) complaint because it utilizes average weather data based on the prior six years." Is this exhibit the "detailed monthly accounting of energy used for heating, cooling, and other end-uses for the entire period under dispute requested in the Order of January 24, 2002? Is it your position that your analysis based on average weather

data is more accurate than actual billing data? If so, why? Have you compared the results of your analysis with actual billing data? If not, why not? If so, how do the numbers compare?

14. On pages 14 and 15 of your direct testimony, you discuss highlights of Exhibit KSD-2, and refer specifically to various items on Page V600 – 29 of the Trace Program. On Page V600 – 29, in the column titled "GAS," there appears a number for "Base Utilities" of 21,168,000 kBtu/yr. In the same column, the number for "Primary Heating" is 0.0 kBtu/yr, and the number for "Domestic Hot Water" is 0.0 kBtu/yr. Do this mean your analysis shows no gas is used at the Corporate Complex for heating or domestic hot water? Please explain, for the category of "Base Utilities," what the gas is used for.

15. On page 13, lines 14-16 of your direct testimony, you state, "individual meters are not installed on pieces of equipment" Has Principal ever considered submetering of buildings or systems in the Corporate Campus, to record and analyze energy use? Why or why not? At what level could submetering be performed, what equipment should be used, and what costs would be involved?

16. What is the definition of electric space heating? Provide examples. Are there electric end uses that produce heat that should be excluded from this definition? If yes, why should they be excluded? If no, why shouldn't they be excluded?

17. In your rebuttal testimony, page 9 line 180 through page 10, line 181, you state, "I believe that Study 3, which used the square foot methodology, is the most significant." Please describe in detail the square footage methodology, as you understand it, and provide all drawings, data and calculations you used to perform your analysis of Principal's energy usage, using the square footage method you describe (references to specific parts of your testimony may be used where relevant). Would you recommend the "square footage methodology," as you understand it, to be the sole method for determining the "preponderant source of heat?" Would you rely on the square footage method, even if actual energy use, determined by metering, showed that electricity was not the preponderant source of heat? If the square footage method should not be used exclusively, what other methods would you recognize and accept? If other methods should be used in parallel with the square footage method, what weight should be given to the results of each method, compared to the "square footage methodology?"

18. In your rebuttal testimony, page 10, lines 188-190, you state "MidAmerican learned that the preponderant area of the Corporate Campus can be heated by permanently installed heating equipment even if they changed the tariff to prohibit consideration of heating provided by lights." Please explain in detail this statement. Provide specific documentation of how MidAmerican "learned" the facts you state.

19. In your rebuttal testimony, page 10, lines 193-197, you refer to Exhibit KSD-13 and you direct attention to the fourth paragraph from the bottom. Please confirm this is the paragraph that reads as follows:

On a strictly BTU's/sq-ft-yr basis, using the ASHRAE table and the respective percentages, we see lighting comes in at 45,533 BTU's/sq-ft-yr compared to natural gas space heat of 21,712 BTU's/sq-ft-yr. Therefore, we would NOT want to pursue this argument on strictly a BTU basis.

Can you relate the numbers in Exhibit KSD-13 to either your square footage method and its results, or to MidAmerican's square footage determination? If yes, provide details.

20. In your rebuttal testimony, page 2, lines 21 – 26, you say that certain numbers show "electricity provided 62 percent of the heat energy for the Corporate Complex." Please provide all the data and calculations used to establish the numbers in your testimony, upon which you base your statement.

21. In your rebuttal testimony, page 2, lines 29-31, you state "using MidAmerican's square footage method, the square feet area served by electric boilers or resistant heating is 833,751 or 54 percent and the square feet area served by gas boilers is 706,760 or 46 percent." Please provide the data and calculations used to generate the numbers in your testimony. Please describe in detail the square footage of each building in the Corporate Campus, and how each building in the Corporate Campus is heated.

22. In your rebuttal testimony, page 3 line 60 through page 4, line 70; you state "with the exception of Customer E, there are not other customers to compare with Principal's electric usage." Is it your position that MidAmerican's tariff LHS applies or should be applied only to other office buildings comparable to the Corporate Campus? If yes, why?

23. In your rebuttal testimony, page 4 lines 71-75, you state:

It is logical that less of Principal's total electric and gas utility consumption is weather dependent because Principal's buildings are designed and operated efficiently . . . so that more resources and energy can be expended toward useful office and data processing activities necessary to support the services provided by an insurance and financial services company.

Do you mean to say that the electricity used for "office and data processing activities" does not affect the amount of heating needed for the Corporate Campus? If yes, is it your position that the electricity used for "office and data processing activities" should be estimated and excluded from the calculations of weather sensitivity performed by MidAmerican? If yes, how would you go about doing such calculations?

24. In your rebuttal testimony, page 5, lines 88 -93, you state Ms. Acord should have used the "heating months" of October through May in her Exhibit MAA-2. If Exhibit MAA-2 were revised to use the "heating months," do you believe Exhibit MAA-2 would be an accurate portrayal of "Weather Sensitive Electric Usage?"

25. In your rebuttal testimony, page 5 line 99 through page 6, line 105, you state that electricity use in the Corporate Campus does not increase as temperature decreases, because "the buildings are energy efficient, which diminishes the impact of the decreasing outdoor temperatures on utility consumption. Additionally, the second stage of heating, which is used less than 37 percent of the time, is primarily gas." Do you mean that the electric heating sources in the Corporate Campus begin operating all at about the same time at one fixed level, which does not increase as temperature decreases? If no, describe in detail how the electric heating sources respond to decreasing temperature. Does the "second stage of heating," which is gas, operate only at one fixed level, for 37 percent of the time? If no, describe in detail how the gas heating sources respond to decreasing temperature.

26. In your rebuttal testimony, page 7 lines 123 - 128, you state Ms. Acord overestimates peak gas consumption for heating. Please explain what you mean by "base load" and the number you believe to be the correct amount of "base load." Please explain in detail why the calculation of "peak gas consumption" should, or should not determine the "preponderant source of heat" as used in tariff LHS.

27. In your rebuttal testimony, page 8 lines 150 - 155, you state, "the breaker rating was not used for the energy analysis, but only to illustrate breaker rating, for the purpose of comparing nameplate boiler capacities with nameplate electrical capacities." Please explain where in your direct testimony you make your comparison of nameplate boiler capacities with nameplate electrical capacities.

Does your comparison of "boiler capacities" with "nameplate electrical capacities" show that "permanently installed electric space heating" is the "preponderant source of heat" for the Corporate Complex? If yes, explain how in detail.

28. In your rebuttal testimony, page 8 line 158 through page 9, line 166, you state your "analysis identified all of the coils and their loads what would be expected to occur simultaneously on a winter day" You then state "the buildings, by design, do not require that all heating coils operate at the design capabilities at the same time." You also state "this means that when you compare the individual coil capacities to the main heating plant capacity, the heating plant is 25 percent to 50 percent smaller than the sum of the coils." Please relate your analysis which "identified all of the coils and their loads that would be expected to occur simultaneously on a winter day" to a specific method of determining the "preponderant source of heat." Do you recommend this method as the only or primary method of determining the "preponderant source of heat?" Please explain whether your analysis and your recommended method of determining the "preponderant source of heat" included "a heating plant . . . 25 percent to 50 percent smaller than the sum of the coils."

29. In your rebuttal testimony, page 9 lines 172-175 you state "electricity usage for the Corporate Complex is two to three times as much as the gas usage during the winter months." Please provide specific data or references to support your assertion. You also state, "according to Ms. Acord's analysis, only 38 percent

of Principal's gas consumption is dependent on winter months." Please provide a reference to the specific part of Ms. Acord's testimony you critique, and explain what you mean by the phrase "dependent on winter months."

30. In your rebuttal testimony, page 11 line 219 you testify in response to the question "Mr. Douglas testified that the entire Corporate Complex is heated in some manner. Is that true?" You state "absolutely not." Please explain exactly what part of Mr. Douglas' testimony you refer to. Please explain why you disagree.

31. In your rebuttal testimony on page 12, line 227 you refer to Exhibit KSD-15. Exhibit KSD-15 includes Principal's request to Mr. Douglas for a "heat balance analysis showing where the heat output from lights foes(sic) that is 'unusable or unrecoverable.'" Are you in agreement with Mr. Douglas' response and his "Zone Heat Balance Analysis?" If not, which parts do you disagree with and why? Do you agree with Mr. Douglas' characterization of the heat as being captured from lights, computers, occupants and solar sources? If yes, do you also count the heat from computers and other electric equipment in your square footage method or any other analysis of heating in the Corporate Complex? If not, why not?

32. In your rebuttal testimony, page 14, lines 262 – 265, you state, "this means by energy efficient design and operation, there is not heat requirement in the interior space under normal operating conditions." How do you use this conclusion in your analyses of the Corporate Complex? For example, do you exclude the "interior space" from your square footage analysis?

33. Please explain in detail your statement in your rebuttal testimony, page 14 that your Study 1 was not designed to detail energy usage, but rather was intended to "show the outdoor air temperature breakeven point for electric heating systems and gas systems." Please explain how your Study 1 contributes to any of the methods you use to analyze and establish the "preponderant source of heat," including the square footage method.

34. In your rebuttal testimony, page 15, lines 288-290, you state Mr. Douglas (and Ms. Acord) do not take into consideration the fact that electricity is 75 percent of Principal's total consumption and gas is only 25 percent. Please explain how you arrived at these numbers. Please explain how the numbers you cite support any of the methods for determining the "preponderant source of heat," especially the square footage method.

35. In your rebuttal testimony, pages 15 and 16, lines 292 through 317, you respond to Mr. Douglas' testimony that you underestimated Principal's gas using equipment. Please cite the exact parts of Mr. Douglas' testimony, which you refute. Do you affirm that the "gas-fired heating coils" Mr. Douglas identifies on drawings AC-2-8 and AC-23-3 are no longer in service?

36. In your rebuttal testimony, page 16, lines 309 through 311, you state "the coils associated with the kitchen equipment, and the heat gain from computers was not included in our analysis. Production heat, such as kitchens and computer usage, is not included in the LHS analysis." Please explain in detail why you did not

include the heat from "production heat?" Please explain how and why the heat produced by lights is different from "production heat?"

37. In your rebuttal testimony, page 18, lines 351 through 356, you defend your Exhibit KSD-5 against Mr. Douglas' criticism that you overstated the 3,764 kW of lighting listed in the exhibit. You say, "these numbers were not used in the Trane Trace analysis." Please explain what these numbers were used for. Please explain how, by which method, you use these numbers in your determination of the "preponderant source of heat."

38. In your rebuttal testimony, on page 18 lines 357 through 360, you state the Trane Trace 600 model spreads consumption over 12 months. Please explain how this feature of the model contributes to the determination of the preponderant source of heat.

39. In your rebuttal testimony, on page 19 lines 364 through 367, you state, "comparing Ms. Acord's total utilities billed for the dispute period, 71 percent is electricity and 29 percent is gas." Please explain how these numbers contribute to the determination of the preponderant source of heat.

40. In your rebuttal testimony, on page 19 lines 370 through 375, you state the amounts of electricity and gas used to heat the Corporate Campus, and cite your Exhibit KSD-9. Exhibit KSD-9 consists of a pie chart showing "Electric 62 percent" and "Gas 38 percent." Please provide all data and calculations used to generate

Exhibit KSD-9 and the numbers you cite on line 373. Please describe what method of determining the "preponderant source of heat" you are using.

41. In your rebuttal testimony, on pages 19 line 378 through page 20 line 382, you describe Exhibit KSD-17, a "chart representing Principal's weather sensitive energy usage, per MAA-3." Please provide all data and calculations used to produce Exhibit KSD-17. Please describe what method of determining the "preponderant source of heat" you are using.

42. Is tariff LHS clear enough that customers and MidAmerican can accurately and uniformly determine a customer's eligibility for rate schedule LHS? Why or why not?

For any MidAmerican witness.

1. MidAmerican's tariff sheet for LHS service (MidAmerican Answer, Attachment D), states under "APPLICABLE" the following:

At the option of the customers, in combination with general electric service required on premises by customer, *electric space heating which is permanently installed as the preponderant source of heat*, subject to applicable terms and conditions of the Company's Electric Service Policies and Electric Rate Application. (Emphasis Added)

(a) Is tariff LHS clear enough that customers and MidAmerican can accurately and uniformly determine a customer's eligibility for rate schedule LHS? Why or why not?

(b) Specifically, when MidAmerican performed an analysis of the Corporate Complex and its eligibility for rate LHS, did it analyze the square footage and associated heating systems? What were the results? Were these results communicated to the Principal at the time MidAmerican stated the Corporate Complex was not eligible for rate LHS?

(c) When MidAmerican performed an analysis of the Corporate Complex and its eligibility for rate LHS, did it analyze the actual energy usage of existing buildings? What were the results? Were these results communicated to the Principal at the time MidAmerican stated the Corporate Complex was not eligible for rate LHS?

(d) Has MidAmerican consistently and uniformly determined eligibility for rate LHS? Explain in detail. For each customer now on rate LHS, and therefore who presumably meets the terms of rate schedule LHS, provide a detailed explanation of how MidAmerican determined the customer was eligible for the rate, and why and how each of those customers are different than the Principal's Corporate Complex.

(e) How long has tariff schedule LHS existed? For each customer on rate LHS in the past who is not currently on rate LHS, provide a detailed explanation of how MidAmerican determined the customer was eligible for the rate, and why and how each of those customers are different than the Principal's Corporate Complex. Why is each customer no longer on rate

LHS? If a customer is not on rate LHS because it is not eligible, how did MidAmerican determine the customer was not eligible?

2. In your opinion, what is the best method to determine the preponderant source of heat? Explain why.

3. What is the definition of electric space heating? Provide examples. Are there electric end uses that produce heat that should be excluded from this definition? If yes, why should they be excluded? If no, why shouldn't they be excluded?

4. With respect to applicability of rate LHS, is "electric space heating" to consist of only resistance heating elements, which convert electricity to heat by action of electrons on high-resistance materials?

5. Is the "electric space heating" limited only to equipment dedicated only to heating human-occupied space?

6. Could the "electric space heating" include electric heat pumps, designed to transfer heat from air or water, by means of electrically driven mechanical vapor compression systems? (This type of equipment also provides space cooling in summer.)

7. Does eligible "heating" include only heat needed to compensate for heat lost to cold outside temperatures, or does "heating" include raising the temperature of air needed to ventilate conditioned spaces?

8. What does "preponderant source of heat" mean?

- (a) Does "preponderant" mean "more than 50 percent of heating Btus?"
- (b) Does "preponderant" mean "more than 50 percent of square footage?"
- (c) Does "source" exclude all electrical or gas-fired equipment not solely dedicated to heating?
- (d) Does "heat" mean only the heat needed during a certain period of time, such as October through May, produced by "electric space heating?"
- (e) Or, does "heat" mean the Btus provided by "electric space heating," below a certain temperature, when the building no longer is being cooled? If heating only occurs below a certain temperature, for a certain number of hours per year, should this timeframe determine eligibility? Or should all Btus provided by "electric space heating" be counted whenever supplied?

For MidAmerican witness Ms. Acord.

1. With your direct testimony, you provide Exhibit MAA-1, a copy of a letter dated March 10, 1997, from MidAmerican. In the letter, MidAmerican told Principal that when two buildings, Corporate 1 and 3, were connected to the spot network, all buildings in the Corporate Campus would cease to be eligible for rate LHS. The letter did not explain how MidAmerican determined that "Principal will no longer be eligible for rate LHS on the new primary metered service serving the

Corporate Complex." Please provide evidence of when and by whom MidAmerican determined that the Corporate Campus was not eligible for rate LHS in 1997, and the method used to make the determination.

2. In your direct testimony, page 3, line 61 through page 4, line 66, you state: "During this period of negotiations until January 1, 1998, the date upon which Principal began receiving electric service under the Electric Service Agreement, although Principal was not eligible for Price Schedule LHS, MidAmerican allowed Principal to be billed at such rate until the new contract rate under the Electric Service Agreement became effective."

(a) Why was this decision made, and who made the decision?

(b) On what date did the entire Corporate Campus begin receiving electrical service at a single point? What was the effect on MidAmerican's revenue from sales made to the Corporate Campus under rate LHS, rather than rate LPS, for the period from that date through December 31, 1997?

(c) Has MidAmerican allowed other customers ineligible for rate LHS to receive service under that rate? If so, provide details and explain why Principal is different from those customers.

3. Starting in January 1999, MidAmerican began providing service to the Corporate Campus under Price Schedule LPS. Why did MidAmerican start applying rate LPS to the Corporate Campus when it had previously not done so?

4. Ms. Draper asserts in her direct testimony, page 6, lines 4-6, that "at the time Corporate 4 was being designed, the MidAmerican customer service representative assigned to Principal assured me that the electric light heat recovery system would count toward electric space heating." On page 3, lines 50-53 of Ms. Draper's rebuttal testimony, she identified Mr. Ken Setzkorn as the customer service representative. Did Mr. Setzkorn make this statement? Does MidAmerican agree that Mr. Setzkorn was the MidAmerican customer service representative assigned to Principal at the time Corporate 4 was being designed? Who is Mr. Setzkorn, and what is his position, expertise, and experience with MidAmerican? If Mr. Setzkorn made the statement, did he have the authority to make the statement, and was MidAmerican management aware that Mr. Setzkorn made the statement? Did MidAmerican follow up on this alleged statement with confirmation or retraction? If you have any written communication of this alleged statement, please provide it. Does MidAmerican consider Mr. Setzkorn's alleged statement to be binding on MidAmerican? Why or why not? Provide a detailed response to Ms. Draper's testimony.

5. In your direct testimony, page 7, lines 139 through 140, you state: "an estimate based on square footage would not substitute for actual measurement of heat sources as indicated by meter readings." Has MidAmerican ever considered submetering of buildings or systems in the Corporate Campus to record and analyze energy use? Why or why not? At what level could submetering be performed, what

equipment should be used, and what costs would be involved? Are there any obstacles to submetering so great that they preclude installation? If yes, why?

6. In her direct testimony, page 9, line 18 through page 10, line 6, Ms. Draper states that MidAmerican provided Principal with a statement about a process for determining eligibility for electric service under Rate Schedule LHS using square footage.

(a) Does MidAmerican affirm that this "square footage" method is the process used to determine LHS eligibility?

(b) Does this method appear in MidAmerican's tariffs? If not, why not?

(c) Did MidAmerican use this "square footage" method to determine that the Corporate Campus was not eligible for Price Schedule LHS? If not, why not? If yes, when and by whom was the method applied? What were the specific numerical results?

(d) Did MidAmerican use this "square footage" method to determine other customers' eligibility for Price Schedule LHS? Provide evidence.

(e) Can a detailed description of this "square footage" method, as applied to the Corporate Campus, be found in MidAmerican's testimony? If not, please provide it.

7. In your direct testimony, page 7, lines 135 through 140, you state that a square footage method "cannot be applied when different portions of the facility are

heated for different conditions, or when a portion of a building is heated with a combination of multiple fuels." Are you saying that you or another person at MidAmerican could not or did not apply the square footage method to the Corporate Campus? Provide a detailed explanation of your statement.

8. In your direct testimony, page 4, lines 71 through 73, you state "the addition of these two buildings [Corporate 3 and Corporate 1] changed the preponderant source of heat to gas space heating." Did MidAmerican reach this conclusion prior to the addition of these two buildings, and if so, how? Explain in detail how MidAmerican calculated the "preponderant source of heat" for the Corporate Complex. What, if any, analysis of the preponderant source of heat was provided to Principal, and when was it provided?

9. In your testimony at page 10, lines 200 through 202, you state that the "five customers being served on Price Schedule LHS were evaluated using the same criteria" The criteria you cite cannot be discerned from your testimony. Please be specific.

10. In your testimony, you provide exhibits and testimony analyzing the energy bills for the Corporate Complex. You also analyze the energy bills for other customers served on Price Schedule LHS. In your testimony on page 10, lines 202 through 203, you state, concerning the customers on Price Schedule LHS, "their energy consumption indicates a continued qualification for Price Schedule LHS." Does MidAmerican routinely analyze the bills of its customers on Price Schedule

LHS, to determine "continuing qualification? Or was the analysis you sponsor performed only for the purpose of this proceeding?

11. In your testimony at page 10, lines 201-202, you testified the five customers all use permanently installed electric space heating as their preponderant source of heat. Please describe each customers' permanently installed electric space heating in detail, and explain how each differs from that of the Corporate Campus so that the other customers qualify for rate LHS when the Corporate Campus does not.

12. Describe all the methods you believe are valid to determine the preponderant source of heat. Tell us which method you believe to be most accurate and why.

13. What is the definition of electric space heating? Provide examples. Are there electric end uses that produce heat that should be excluded from this definition? If yes, why should they be excluded? If no, why shouldn't they be excluded?

14. On page 11 of her rebuttal testimony, Ms. Draper cites a response from you to a data request (Draper, Exhibit KSD-14). Do you affirm this response? Ms. Draper states in lines 209-210 of her rebuttal testimony that "MidAmerican is now conceding the appropriateness of the square footage methodology." Do you agree? If not, explain in detail.

15. Is your regression analysis intended to isolate the weather-dependent winter heating energy use?

16. If MidAmerican is comparing electric and gas Btus to determine the preponderant source of heat, where is it measuring the Btus? At the burner tip or as applied to the heated space? Please explain why.

For MidAmerican witness Mr. Douglas.

1. In your direct testimony, page 6, lines 132-136, you state that Ms. Draper overlooked gas-fired heating coils. Please be more specific about the "overlooked gas-fired heating coils." Which buildings on the Corporate Campus do these coils serve? How is the exclusion of these coils relevant to determining the preponderant source of heat? Where in your exhibits are these coils identified?

2. Please further explain your statement on page 6, lines 133 through 136, that these gas-fired coils provide necessary heat and ventilation throughout the Corporate Complex during the winter months. Please further explain your conclusion that the equipment you identify is used for routine ventilation, rather than being limited to emergency or equipment rooms. Why is this heating use significant? How significant is this heating?

3. In your direct testimony, page 7, lines 151 through 158, you state that Principal uses gas-fired heating coil units, integral to HVAC systems, as a significant source of heat. Are these coils the items on Principal's Drawing AC-2-8 in your

Exhibit JSD-3, that you claim Ms. Draper overlooked? How do these coils apply to the Corporate Campus?

4. In your direct testimony, page 8, lines 172 through 177, you state that pulling air through slots in the lighting fixtures does not provide any additional value to the efficiency of the HVAC system. You also state use of slotted lighting systems is done more for the aesthetics of the building space.

(a) Please explain further your statement about aesthetics.

(b) Do you agree that the return of ventilation air through slots in lighting troffers helps improve the efficiency of lighting systems by reducing the temperature of the fluorescent tubes? Why or why not?

5. In your direct testimony, page 18, lines 403 through 408, you state Ms. Draper under-reports the amount of gas-fired heating equipment in Corporate 3 by 25 percent. Please explain your testimony in detail and provide evidence for your conclusion.

6. In your direct testimony, page 22, lines 482 through 485, you state "MidAmerican's metered outputs show that 44 percent of the expended Btus are gas-fired heating components." Is this correct, or do you mean something else? Please explain your statement.

7. In your direct testimony, page 22, lines 486 through 487, you state, "without sub-metering capability, it is not possible to separate the electric heating that is occurring in Corporate 4." To your knowledge, has either MidAmerican or Principal

considered or proposed installation of metering or submetering on heating systems in the Corporate Complex? Why or why not? At what level could submetering be performed, what equipment should be used, and what costs would be involved? Are there any obstacles that would preclude such installation? Please explain.

8. Describe all the methods you believe are valid to determine the preponderant source of heat. Tell us which method you believe to be most accurate and why.

9. What is the definition of electric space heating? Provide examples. Are there electric end uses that produce heat that should be excluded from this definition? If yes, why should they be excluded? If no, why shouldn't they be excluded?

10. Ms. Draper, in her rebuttal testimony, pages 15 and 16, lines 292 through 317, responds to your testimony and states she did not underestimate Principal's gas using equipment. How do you respond to Ms. Draper's statement that the "gas-fired heating coils" you identify on drawings AC-2-8 and AC-23-3 are no longer in service?

11. Ms. Draper, in her rebuttal testimony, page 18 lines 353 – 356, states that she used a number for lighting in her Trane Trace analysis of 1.1 watts per square foot, compared to your number of 1.15 watts per square foot. Please respond.

IT IS THEREFORE ORDERED:

The parties will provide answers to the listed questions either in prepared supplemental testimony or at the hearing.

UTILITIES BOARD

/s/ Amy L. Christensen
Amy L. Christensen
Administrative Law Judge

ATTEST:

/s/ Judi K. Cooper
Executive Secretary

Dated at Des Moines, Iowa, this 22nd day of May, 2002.